REMARKS

Claims 1-3 and 5-15 are active in the application. Claim 4 has been cancelled.

Claims 1-15 were rejected under 35 USC 112, second paragraph as being indefinite. The claims have been corrected by amendment. As surmised by the Examiner, claim 1 has been amended to recite that a first antenna is positioned in a lower part of the housing and a second antenna is in the upper part of the housing. This is shown in Figures 1a, 2a, and 3a. With regard to claim 3, the phrase "normally used" indicates the default or primary antenna. The "normally used" antenna is the antenna that is used if both antennas provide acceptable signals (i.e. under normal circumstances). Claim 3 has been amended to make this clear. As recommended by the Examiner, claim 9 has been amended to recite switching to a different antenna. With regard to claim 13, the light sensor detects light changes caused by proximity of a hand or head. The light can be reflected light from a light source on the portable radio device, or the light can be ambient light blocked by a hand. These embodiments are described in detail on page 7 of the present specification.

Claims 1-6 and 8-10 were rejected under 35 USC 102(e) as being anticipated by US patent 6,628,962 to Katsura. Claims 1-5, 7-9, 11-12 and 14-15 were rejected under 35 USC 102(e) as being anticipated by US patent 6,678,532 to Mizoguchi. Claims 4-8 and 11 were rejected under 35 USC 103(a) as being unpatentable over Katsura in view of Bowen et al. These rejections are traversed in view of the amendments above and arguments below.

The present invention provides a portable radio device, such as a cellular telephone or other device, having two antennas that are switched so as to avoid adverse effects of a hand or head in close proximity. In a preferred embodiment of the present invention, optical sensors are employed to detect the location of a hand or head, and the antennas are switched accordingly. Also, in another embodiment, the present invention is directed towards switching transmission antennas. This provides the advantage of improving transmission which can be adversely affected by hand proximity.

With respect to the Katsura reference, it appears that a technical error in the office action has been made. Specifically, claims 4-6 and 8 have been rejected as being

anticipated by Katsura, and have been rejected as being obvious over Katsura in view of Bowen.

A number of the features of claim 4 have been incorporated into claim 1. Specifically, claim 1 now requires a sensor for sensing when an antenna is covered. The sensor output determines which antenna is to be used. A sensor for sensing proximity of a hand or head is not taught or suggested by Katsura, and therefore the rejection of claim 1 based on Katsura is traversed by the amendment. Regarding claim 5, Katsura does not teach or suggest a touch sensor for determining or switching antenna function. Regarding claim 6, Katsura does not teach or suggest an optical sensor.

The combination of Katsura and Bowen does not make claim 4-8 and 11 obvious. In addressing this rejection, claim 1, as amended, is considered since it incorporates many of the features of original claim 4.

Katsura teaches a device that has an antenna optimized for telephone communication and a second antenna optimized for data communication. Specifically, first antenna 5 is for telephone communication (col. 4, lines 43-45), and second antenna 6 is for data communication (col. 4, lines 46-47). Katsura teaches that the antennas are switched *based on use condition*. Specifically, Katsura states in col. 5, lines 9-13: "...the antenna selection device 10 selects the extendable/storable antenna 5 during telephone communication and connects it to the wireless circuit 11 and selects the whip antenna 6 during data communication and connects it to the wireless circuit 11" (see also col. 5, lines 32-36). In an alternative embodiment of Katsura, antenna selection is based on an *angle* sensor (20 of Fig. 8), since horizontal orientation is typical during data communication, and vertical orientation is typical during telephone communication.

Bowen et al. uses an infrared range detector to select between speakerphone and microphone functions.

Katsura does not employ range detection for antenna selection. Further, Katsura does not employ any kind of detector that could be replaced by the infrared range detector of Bowen et al. Thus, there is no motivation to replace the *angle* sensor of Katsura with the *infrared range* detector of Bowen. An infrared range detector cannot function as an angle sensor. Katsura requires a sensor or mechanism for selecting antennas depending on whether data communication or telephone communication is

desired. The infrared range detector of Bowen *cannot provide discrimination between data communication and telephone communication*. Hence, there exists no motivation to combine Katsura and Bowen as proposed in the Office Action.

Also, even if Bowen is combined with Katsura as proposed in the office action, the result will be very different from the present invention as claimed in amended claim 1. The present invention requires a sensor that detects which antenna is covered (e.g. by a hand or body part). Specifically, claim 1 requires that the sensor determines "when the first antenna or the second antenna is covered". By comparison, Bowen teaches infrared range detection that detects the distance between the device and a head or hand. The range detector of Bowen cannot determine which antenna or which portion of the device is covered, which is an essential feature of the present invention. Hence, the combination proposed in the Office Action will not produce the invention as claimed.

Also, it is noted that the combination of Katsura and Bowen will be a device that selects between a data antenna and a telephone antenna based on the output of the infrared range detector. This is because Katsura necessarily requires switching between a data antenna and a telephone antenna. By comparison, the present invention in claim 1 requires switching between two antennas having interchangeable functionality. The antennas of the present invention are not designed for different use conditions, as in Katsura.

Claim 9 was rejected in view of Katsura col. 6, lines 13-63. This rejection is erroneous because Katsura does not teach or suggest detecting the deterioration of an antenna characteristic. Katsura does teach that antenna performance will suffer if the antennas are not properly switched. However, wholly absent from Katsura is any teaching or suggestion to detect antenna characteristics and switch antennas based on the detected characteristic. Katsura only teaches that antennas are switched based on use condition (i.e. data or telephone use) Accordingly, the rejections of claims 9-10 based on Katsura must be withdrawn.

The rejection of claim 1 based on Mizoguchi is erroneous because claim 1 includes the limitation that both the first and second antennas are *disposed in* the housing. The antennas of claim 1 are *internal antennas*. By comparison, Mizoguchi requires an *external* whip antenna located outside the housing (see, for example, Figs. 7, 11A, 11B,

and 14 and col.. 6, lines 4-10, col.. of Mizoguchi). Mizoguchi lacks any teaching or suggestion that both antennas can be internal antennas. Hence, the rejection of claim 1 based on Mizoguchi is erroneous and must be withdrawn.

Also, it is noted that Mizoguchi teaches that both antennas 11A 11B are located in an upper part of the device (i.e. as defined by hinge location). Antennas 11A 11B are located very close together. Claim 1, by comparison, requires that first and second antennas are located in top and bottom portions of the device. Hence, the rejection of claim 1 is erroneous and must be withdrawn for this additional reason.

Claim 9 has been amended to specify that the antennas are *transmission* antennas as distinct from reception antennas. This feature is supported throughout the specification which describes the antennas as 'transmission antennas' and by the specification at page 5, lines 7-8. Mizoguchi teaches a portable phone with multiple antennas. The antenna impedance is monitored and the detected result is used to select *the best antenna for reception*. Unlike the present invention as claimed in amended claim 9, Mizoguchi requires that the switched antenna is useful *only for reception*. Specifically, Mizoguchi states on col. 9, line 66- col. 10, line 5 (emphasis added): "The second high frequency switch 24b has a contact to connect of the *receive-only second antenna* 11b with the receiving circuit 22 in case of the reception. The first high frequency switch 24a has a contact to connect the transmitting circuit 23 with the first antenna 11a in transmission, and a contact to connect the first antenna 11a with the receiving circuit 22 through the second high frequency switch 24b in case of reception." From this statement, and inspection of Fig. 15 (see switches 24a 24b) it is clear that two antennas (antennas 11a 11b) are available for reception, and *only one antenna* (antenna 11a) is available for transmission. Wholly absent from Mizoguchi is any teaching or suggestion that multiple transmission antennas can be switched. Mizoguchi does not teach or suggest switching between two transmission antennas. Claim 9, by comparison, requires a plurality of *transmission* antennas and switches for selecting a transmission antenna based on detected antenna characteristics. Accordingly, the rejection of claim 9 based on Mizoguchi is traversed, and the rejection must be withdrawn.

Also, regarding claim 12, Mizoguchi does not teach or suggest a touch sensor for selecting antennas. Mizoguchi teaches only that antenna impedance is used for antenna selection.

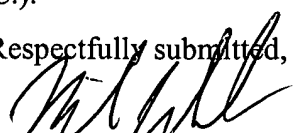
Bowen has not been relied on for providing an optical sensor in combination with Mizoguchi. It is noted that any combination of Bowen and Mizoguchi would suffer from the same shortcomings as the combination of Bowen and Katsura. Specifically, The range detector of Bowen cannot determine which antenna is covered. Hence, the range detector of Bowen cannot be used to determine which antenna of Mizoguchi should be used. Therefore, any conceivable combination of Bowen and Mizoguhci will not meet the limitations of claim 1 as amended.

In view of the foregoing, it is respectfully requested that the application be reconsidered, that claims 1-3, 5-15 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees for the petition or for entry of this amendment to Attorney's Deposit Account No. 50-2041 (Whitham, Curtis & Christofferson P.C.).

Respectfully submitted,



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Annotated Marked-Up Drawings

FIG.1(B)

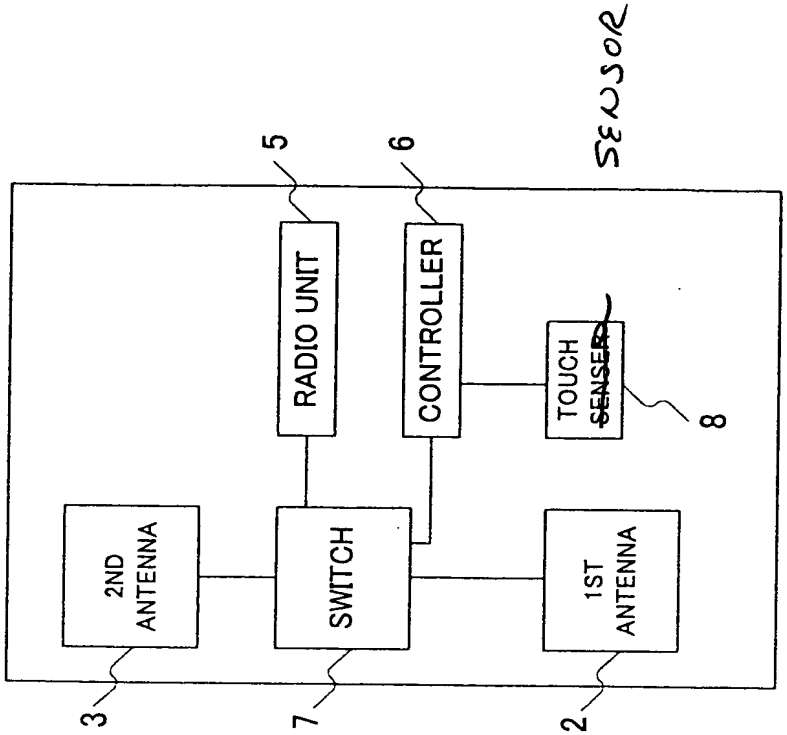
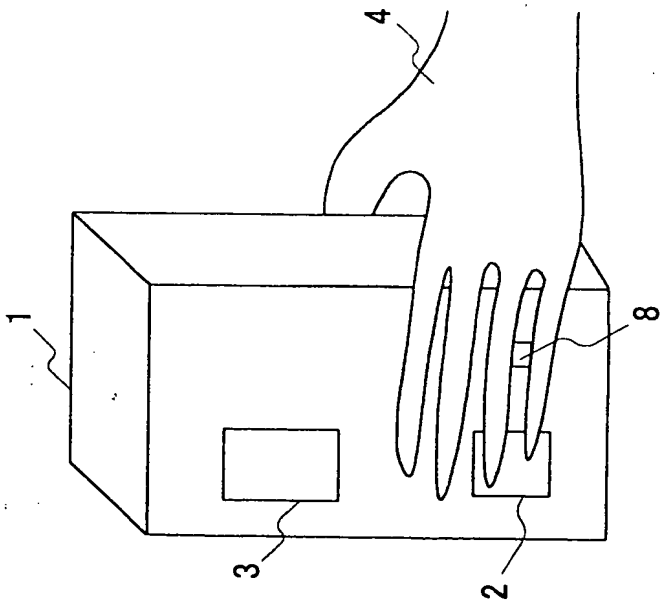


FIG.1(A)



Annotated Marked-Up Drawings

FIG.2(B)

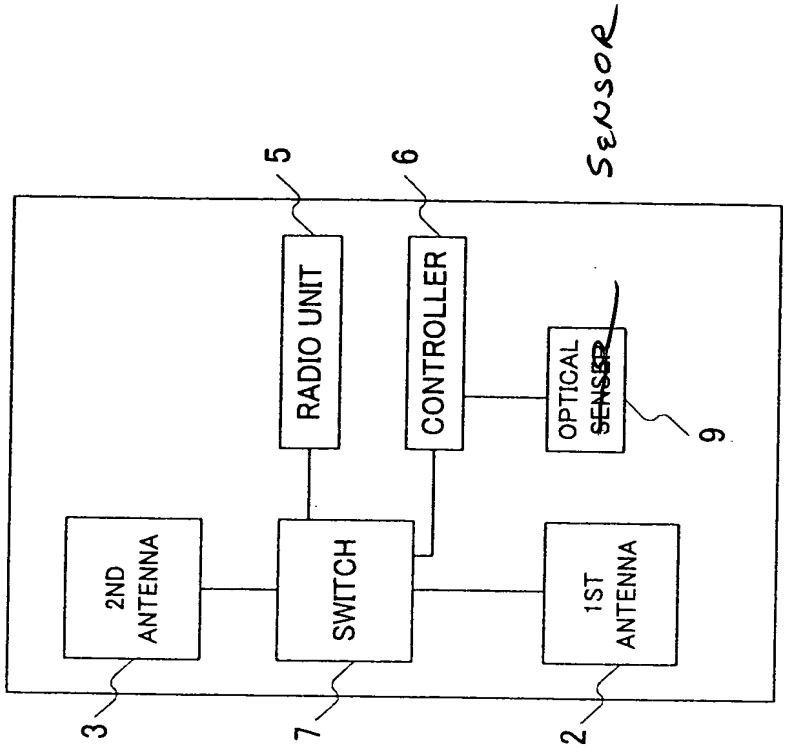


FIG.2(A)

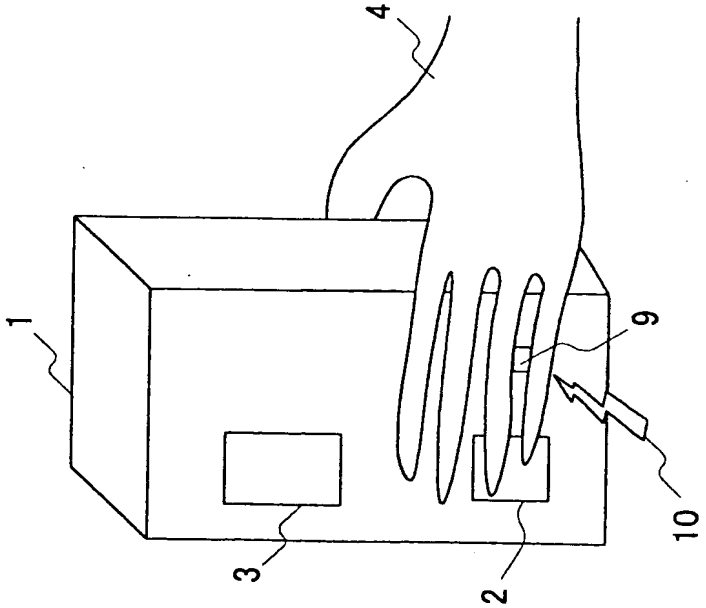


FIG.3(B)

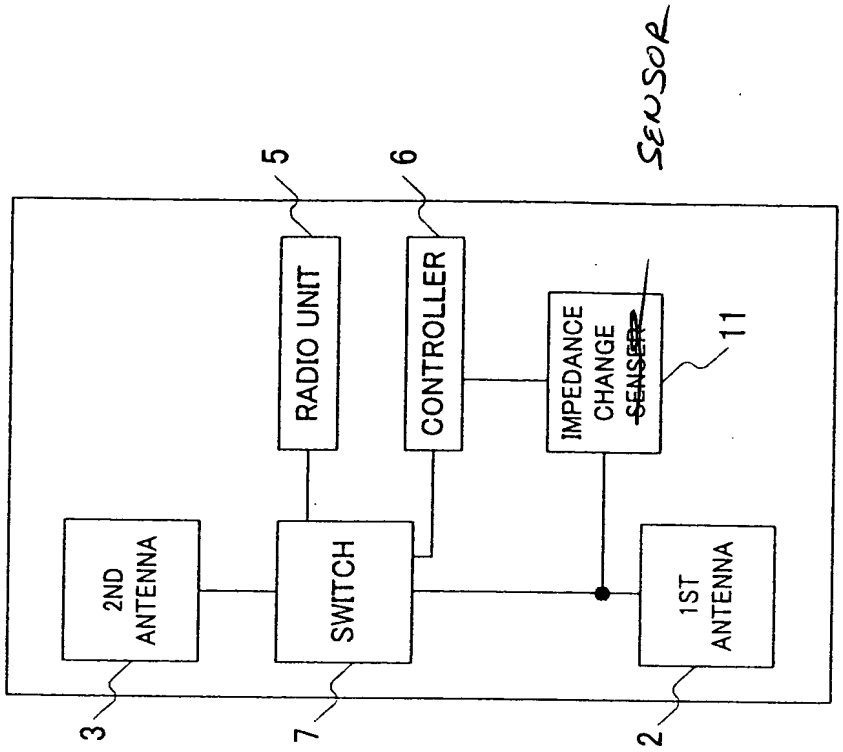


FIG.3(A)

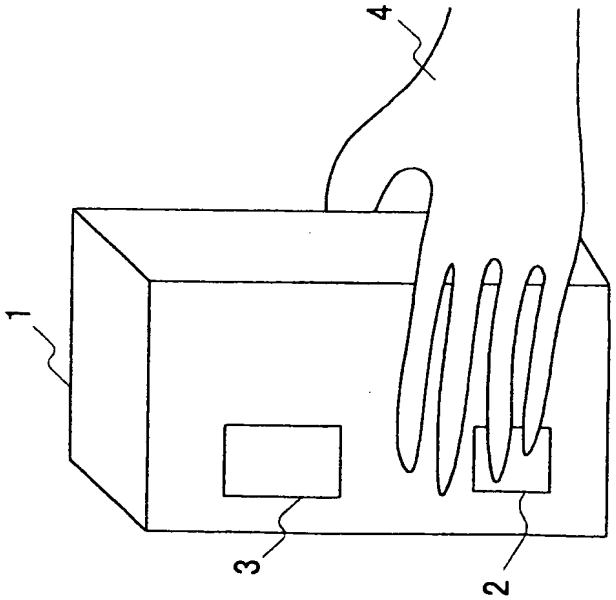


FIG.4